we must again warn medical superintendents that the public mind, at the present day, can be only temporarily controlled by "arguments" of this sort. Its reasoning, though but partly conscious and articulate, finally leads to just, practical conclusions. Enlightened public opinion, indeed, is the only ground of real and permanent reform ; and when it shall have become fully understood that such delicate and responsible public duties as the care of the insane are committed to officials exercising absolute authority, accountable to no one for their expenditures, and openly combined to resist all attempts at investigation, asylum reform will be no longer delayed.

In conclusion, we shall present a resumé of the changes in asylum organization and management, suggested by the movement for reform now in progress in New York, and by our own observation and experience :

1. To abandon the theory of asylums which considers them chiefly as lunacy-cures, established for the benefit of local interests, and to be maintained by lobbying and advertising.
2. To abolish the local boards of trustees, and adopt a system of State management for State institutions, with a single responsible head, in place of the present formal management.
3. To devolve the medical and general supervision of asylums upon the State Board of Charities, which should be composed in large part of physicians.
4. To enact a law similar to that providing for the removal of trustees of savings banks for abuses of trust, so that commissioners or trustees, charged with the supervision of asylums, and neglecting or abusing their trusts, might be summarily removed.
5. The enforcement of a law never carried into effect, authorizing the admission of private patients into asylums only when there are vacant places not required for public patients ; and the charging of a uniform price of maintenances to both these classes, instead of leaving, as now, the price to be paid by private patients at the discretion of the superintendent. L. A. T.

## II.—DURET : CEREBRAL TRAUMATISMS, &c.

Études Expérimentales et Cliniques sur les Traumatismes Cérébraux. Par le Dr. H. Duret. Paris, 1878. Pp. 369. (*Experimental and clinical studies of cerebral traumatisms.*)

(*Continued from January No.*)

In explaining the temporary tetanic symptoms which some times follow a severe blow on the head of an animal, some interesting remarks are made, which may have a wider range of application than the author seems to have given them. At any rate we will place them before the reader. He says, "The tetanic state extends alike to the muscles of the vegetative, as well as those of the life of relation: 1st, the muscles of the members, of the face, of the trunk, of the tail, the eyes, &c., pupillary contractions, muscles of respiration, &c.; 2d, muscles of the rectum, of the bladder, of the salivary and lachrymal ducts, &c., and vascular muscles. There is not the least doubt, but that a 'contracture' so rapid, so general, and having such intensity, is reflex. What is the sensitive part, which is, or may be the point of departure, of the irritation provoking the reflex? It is the medulla, and in the medulla, is chiefly the *restiform* bodies, which are so much injured by the shock of the cephalo-rachidian fluid," produced as was shown in the earlier part of this notice. The author proceeds to support his opinion, that the restiform bodies are chiefly involved in the production of the tetanic phenomena, by the following arguments:

That they are found to be the especial seats of injury in the examination *post mortem* of such cases. That the "restiform bodies are sensitive parts, and mechanical irritation of the same, by experimental means, produces the same tetanic phenomena," as have been seen in Dr. Duret's cases. Even very slight mechanical irritation of these bodies produces a general tetanic movement, its severity being proportioned to that of the irritation, at times producing complete opisthotonos. At this point Dr. Duret supports himself by the authority of his former master, Professor Vulpian. Dr. Duret declares, that irritation of no other part of the medulla produces such phenomena with so much readiness and perfection. Though not a new fact, yet this is an important one, one upon which enough stress has not been laid by clinicists in their endeavors to localize centrally such disorders. Inasmuch as this is an important point, we will quote at greater length from our author: He says, "In no other part of the nervous system do we find, except perhaps in the peduncles, and the posterior part of the internal capsule, collected so many sensory fibres, which by reason of their short course, exert a powerful action on the reflex motor centres, with which they stand united. Why not admit then, that the violent reflex tetanic contractions are the result of their excitation?" In the course of this discussion, Dr. Duret denies that the phenomena could be due to irritation of the dura mater, or its nerves, as there exist reasons for thinking may be true, at least in some cases. The extreme vascular perturbations, which occur in cases like those under discussion, are examined at some length, but nothing of importance to our readers is developed, since this class of subjects has been discussed in the JOURNAL, many times at great length, from its first appearance.

But it may not be amiss to note at this point that during the presence of the tetanic symptoms, Dr. Duret believes himself to have demonstrated that there exists a spasm of the whole arterial system, of the brain as well as of the periphery, and that with a disappearance of the tetanic symptoms, there is a contrary state of the vessels.

But we would not pass on without calling attention to the significance of the fact, as it seems to be, that the restiform bodies are sensitive. The fibres of which these bodies are composed appear to go, at least mostly, to the cerebellum. Do any considerable number among them go elsewhere, or is the cerebellum sensitive? This is a question that has never been satisfactorily answered, so far as we know, but into a discussion of which we cannot now enter, and in relation to which, in the seeming conflict between anatomical and physiological research, we have not been able to arrive at definite opinions.

In drawing practical conclusions from his experiments, consisting of blows on the head, of varying degrees of force, and of observations of the phenomena which resulted, Dr. Duret finds that blows on the *front* of the head are more grave than those made on the lateral regions of the same.

Among the other experimental cases detailed of great interest, is one of a sudden traumatic locomotor ataxia, the principal lesion being in the posterior columns of the upper portion of the spinal cord.

After a prolonged study of the phenomena belonging to each variety of shock, Dr. Duret deduces the following general laws:

1. "When a localized lesion is produced by the traumatic action of the cephalo-rachidian liquid, in any region whatever of the myelencephalon, it is revealed by certain signs, which are in relation with the functions of the wounded part.

2. "In the first period of the phenomena of shock, the signs differ according to the degree of intensity of the lesion produced.

(1.) "If the destruction of the wounded part (centre or conductor) is complete, there is a loss of function, a paralysis.

(2.) "If the lesion is light and non destructive, and consists in a light shock, there is or will be, by mechanical irritation, exaltation of function.

3. "In the second, or period of congestive and inflammatory reaction, if the destruction of the part is complete, we may nevertheless observe at first phenomena of exaltation generally, finally succeeded by paralysis.

4. "In all periods there may be exhibited *phenomena of diffusion* of symptoms, such as epileptiform attacks, contractures, reflexes, &c." (P. 137.)

But it will not be possible to refer to all the suggestive results arrived at and comments made by Dr. Duret in this portion of his memoir. We strongly commend them to our readers—especially the summary found between pages 153 and 157.

Next follows a discussion of intra-cranial pressure, in which the researches of Leyden and others are mentioned, and their results substantially adopted, to the effect, that there exists a degree of intra-cranial pressure which cannot be referred to the atmosphere. M. Duret in the experimental treatment of this subject, employs mostly localized pressure, such as results where wax is injected between the dura mater and bony walls of the cranium, or between the dura and brain, the injection being made through a small hole in the cranial wall. The practical conclusion reached is that such localized compression exerted on the surface of the hemispheres causes general anæmia of the brain and medulla, thus causing in various degrees cessation of the blood-supply to the same. What happens in such experimental lesions, no doubt happens in the accidents to which human beings are subject, in which there is fracture with depression, or meningeal or other hemorrhages. The explanation of the phenomena in the one case, is applicable to those of the other.

This subject of intra-cranio-spinal-pressure, we regard as one of extreme importance, not only in relation to such researches as those of Dr. Duret, and the recent researches of Leyden,* but in relation to changes in barometrical pressure, and the widespreading effects of the same, on intra-cranial pressure, the relations of heat and cold to the same, on account of changes in the cutaneous circulation, and corresponding thereto, changes in intra-cranial vascular pressure, and also changes in posture and its effects on the same. These subjects have not been studied as they deserve to be, and in the future will be, in their hygienic and therapeutic relations, but we cannot enter on a consideration of the same now. There is an interesting chapter, on intra-ventricular hemorrhages, especially in relation to the muscular "contractures" which have been so often observed to follow them. Dr. Duret has produced experimentally, the same lesions as have been observed clinically by Charcot, Vulpian and others, and with essentially the same results. The "contractures" produced by intra-ventricular hemorrhages are due, according to M. Duret, directly to "irritation of the peduncular expansion, or of the restiform bodies, that is to say, of the sensitive parts neighboring to the seat of hemorrhagic lesion."

But this explanation by M. Duret of the mechanism of the "contractures" mentioned, following hemorrhages into the ventricular cavities, has been lately contested by M. Cossy, in a series of observations which it is our intention to give the results of in a future number of the Journal, and which were referred to briefly in our last issue (P. 370). He denies that the cause of the "contractures," is due to irritation of the sensory parts of the peduncular expansion, more especially of the restiform bodies. M. Cossy found injections into the lateral and third ventricles, which did not appear to involve the restiform bodies, to produce the "contractures." He concludes they must be due to irritation of the excito-motor parts of the internal capsule and cerebral peduncles. He moreover denies, that the convulsions due to blows on the head are due to shock in the fourth ventricle, produced by the cephalo-rachidian fluid, as claimed by Dr. Duret. He found that convulsions due to ventricular hemorrhage did not follow any more certainly if in the fourth, than if in the lateral ventricles. Indeed, in twenty cases of hemorrhage in which blood reached the fourth ventricle, in eight only were convulsions present, in the other twelve they were absent. But we do not see that M. Cossy's observations invalidate the fundamental positions assumed by Dr. Duret, or that the latter has correctly explained the mechanism of his own cases.

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* *Archiv fuer Psychiatrie u. Nervenkrank.* Band IX.

We now come to the most valuable portion of Dr. Duret's work, at least on some accounts. It relates to the part played by the dura mater and its nerves in case of injury and disease. The profession, so it seems to us, is only beginning to be aware of the great importance of this membrane in intra-cranial disease.

This part of the work is very properly introduced by an account of the nerves of the dura, which, as it should be remembered, are chiefly from the fifth pair. Those fibres which supply the ethmoidal and orbital portions of the dura, are chiefly from the ethmoidal branch of the nasal, which is from the first division of the nerve. Those supplying the middle region come from the ganglion of Gasser, according to Cruveilhier, those supplying the posterior come from the ophthalmic branch of Willis of the fifth. The nerves of the dura lie quite near its free surface, and are quite abundant. This membrane is not only highly sensitive, but is very vascular. The dura mater is exquisitely sensitive, especially in disease, as is well known.

At this point our author begins the recital of experiments on this membrane, by which he is able to show indubitably, that by irritation of the same produced in various ways, reflex movements were readily produced not only in the voluntary muscles of the face, members, eyes, &c., but of the involuntary, as those of the iris, heart, vessels, &c.

Dr. Duret carefully distinguishes, as some others have not done, between the reflex movements produced by excitation of the nerves of the dura, and those which result from irritation of the cortex of the brain, now so well known since the original researches of Hitzig, Ferrier and others.

Dr. Duret partly agrees with Dr. Dalton, of New York, that the convulsions which result from irritation of the dura, are more likely to be on the same side as the irritation, than is the case with convulsions caused by so-called irritation of the cortex; in this latter case the convulsions are always, according to Dr. Duret, on the opposite side to that operated on. In this part of his subject he quotes to considerable extent the researches of his collaborator, M. Bochefontaine. If the irritation of the dura was mild, the convulsions were restricted and were usually on the side operated on, as will be readily understood by those acquainted with the mechanism and modes of action of the nervous system.

If the irritation is more severe, then the convulsions were not only more wide-spreading, but often extended to the opposite side of the body, as may be readily understood when we consider the structure of the medulla, and the wide range of central relations of the trigeminal root in the same. In cases of irritation of the dura, which lead to reflex vascular disturbances through the vaso-motor nervous system, it is noted by Dr. Duret, that the cerebral circulation is especially liable to derangements. This we regard as an exceedingly important fact, in its clinical relations. For what is observed in experimental cases, is also true for pathological clinical cases. It is exceedingly common to have localized disease of the dura which may and does give rise to a multitude of symptoms according to its extent and seat, as well as its nature and degree of acuteness. Dr. Duret feels authorized to declare as the result of his observations, that "contractures," secondary to lesions of the convexity of the hemispheres, are due to irritation of the nerves of the dura mater. He generalizes as follows: "Lesions of motor regions, centres or conductors, manifest themselves by localized clonic spasms, by spasms generalized under the form of epileptic attacks, or by paralyses. Lesions of sensitive fibres are revealed by pain, by hyperæsthesias, by anæsthesias, or by *reflex motor phenomena*, 'contractures,' or tetanic attacks." And according to our author, the chief seat of the sensory irritation which produces such phenomena (so far as the cranium is concerned), is the dura.

The work then concludes with chapters on the rôle of the vessels of the meninges in cerebral traumatisms, and on the rôle of the different parts of the encephalon in cerebral traumatisms. But under these latter heads there is at this date much less that is new or suggestive. Dr. Duret, as is known long since to our readers, accepts like the majority of French physiologists, the localization of functions in the brain, more particularly its cortex, and towards the establishment of this doctrine our author has made no insignificant contributions from his own researches. The volume is closed by quite a number of finely executed colored drawings, illustrating in an instructive manner the descriptions in the text.

Altogether this is a highly valuable and suggestive contribution to the physiology and pathology of the central nervous system. But the work was evidently prepared for the press in some haste, and in no small measure lacks in that thoroughness and strength of discussion which prevails in the works of his former masters, Charcot and Vulpian. We would not close, however, without expressing a lively sense of obligation to its author, for the benefits obtained in the perusal of his excellent work, which we do not hesitate to recommend to our readers.